

WHAT IS CLAIMED IS:

1. A diesel particulate matter reduction system comprising:
a diesel particulate filter (DPF) configured to capture particulate matter of
exhaust gas;
5 an electric power supply device;
a heater configured to be operated by electric power supplied by the electric
power supply device to heat the DPF;
an air blower configured to be operated by electric power supplied by the
electric power supply device and providing air to the DPF; and
10 a control unit controlling operations of the heater and the air blower.

2. The diesel particulate matter reduction system of claim 1, wherein the
electric power supply device includes a fuel supply nozzle having an electric power
source, and wherein the control unit is electrically connected to the electric power
15 source of the fuel supply nozzle when the fuel supply nozzle is inserted into a fuel
supply hole of a vehicle.

3. The diesel particulate matter reduction system of claim 2, wherein the
control unit includes an electric power supply plug that is disposed near the fuel supply
20 hole, and wherein the fuel supply nozzle is provided with an electric power supply
socket into which the electric power supply plug can be inserted.

4. The diesel particulate matter reduction system of claim 3, wherein the
electric power supply plug and the electric power supply socket are respectively
25 disposed such that the electric power supply plug can be inserted into the electric power
supply socket when the fuel supply nozzle is inserted into the fuel supply hole.

5. The diesel particulate matter reduction system of claim 1, wherein the
heater is disposed upstream of the DPF.

30 6. The diesel particulate matter reduction system of claim 1, further
comprising a temperature sensor detecting a temperature of the heater and generating a

corresponding signal, wherein the control unit controls the electric power to be supplied to the heater until the temperature of the heater reaches a predetermined temperature based on the signal of the temperature sensor.

5 7. A diesel particulate matter reduction method using a diesel particulate filter (DPF), comprising:

 capturing diesel particulate matter of exhaust gas using the DPF; and
 regenerating the DPF by removing the captured particulate matter,
 wherein the regenerating of the DPF comprises:

10 heating the DPF using electric power that is supplied from an external electric power supply device such that the captured particulate matter can be burned; and
 sending air to the DPF.

15 8. The diesel particulate matter reduction method of claim 7, wherein the external electric power supply device is a fuel supply nozzle that is provided with an electric power source.

20 9. The diesel particulate matter reduction method of claim 8, wherein the heating of the DPF is performed by operating a heater using the electric power of the fuel supply nozzle, the heater being disposed near the DPF.

 10. The diesel particulate matter reduction method of claim 9, wherein the heater is disposed upstream of the DPF.

25 11. The diesel particulate matter reduction method of claim 9, wherein in the heating of the DPF, the heater is controlled to operate until a temperature thereof reaches a predetermined temperature.

30 12. The diesel particulate matter reduction method of claim 11, wherein in the heating of the DPF, the heater is controlled to not operate after the temperature thereof reaches the predetermined temperature.

13. The diesel particulate matter reduction method of claim 8, wherein the sending is performed by operating an air blower using the electric power of the fuel supply nozzle.